<u>REMARKS</u>

Claims 1-29 were pending in this application.

Claims 1-29 have been rejected.

Claims 1, 3, 12, 14, 20, 22, and 26 have been amended as shown above.

Claim 30 has been added.

Claims 1-30 are now pending in this application.

Reconsideration and full allowance of Claims 1-30 are respectfully requested.

I.   <u>REJECTION UNDER 35 U.S.C. § 112</u>

The Office Action rejects Claims 1-29 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention.

The Office Action asserts that it is unclear "how the diagonals are defined" and that the "method of selecting the diagonals is ambiguous." The Office Action also asserts that it "appears the diagonals are arbitrarily picked" and that it "is unclear why any particular diagonals (i.e. 606a, 606b) were picked." Claims 1, 12, and 20 have been amended to recite that "a first of the diagonals start[s] at an upper left corner of the upper triangular matrix and travel[s] down and right in the upper triangular matrix." Claims 1, 12, and 20 have also been amended to recite that "a second of the diagonals start[s] at a lower left corner of the upper triangular matrix and travel[s] up and right in the upper triangular matrix." The scope of the phrase "diagonals" in the claims is therefore clear to one skilled in the art. Moreover, it is irrelevant "why any particular

diagonals (i.e. 606a, 606b) were picked" or whether the "method of selecting the diagonals is ambiguous." The claims clearly define the first and second "diagonals" in an upper triangular matrix. The claims therefore comply with § 112, second paragraph, since the claims reasonably apprise those skilled in the art of their scope (as required under MPEP § 2173).

The Office Action asserts that Claim 12 is unclear because Claim 12 previously recited "at least one input operable to receive a first signal and a second signal." According to the Office Action, an "input port or input bus may receive an input," but it is "unclear how an input itself receives another input (first and second signal)." The Applicant respectfully notes that Claim 12 does not require the simultaneous receipt of both the first and second signals. As a result, Claim 12 encompasses a single input that can receive the first and second signals at different times. Claim 12 also encompasses multiple inputs that can receive the first and second signals simultaneously or at different times. Claim 12 further encompasses a single input that can receive the first and second signals simultaneously using any suitable time division or other communication technique. There is nothing to support the Office Action's assertion that an "input" as recited in Claim 12 can only receive a single signal.

The Office Action identifies an antecedent basis issue in Claim 26. The Applicant has amended Claim 26 to correct this informality.

Accordingly, the Applicant respectfully requests withdrawal of the § 112 rejection.

II.   REJECTION UNDER 35 U.S.C. § 101

The Office Action rejects Claims 1-29 under 35 U.S.C. § 101 as being directed to non-

statutory subject matter. In particular, the Office Action states that the claims are "directed to nonfunctional descriptive material per se which is an abstract idea and therefore is not statutory." According to the Office Action, the "nonfunctional descriptive material is outputted by a computer without any functional interrelationship."

First, the Office Action's assertion that the claims are "directed to nonfunctional descriptive material per se" is improper. Claim 1 recites a method that includes various steps, including the output of one or more values. Claim 12 recites an apparatus that includes one or more inputs receiving multiple signals and one or more processors performing various functions. Claim 20 recites a computer program that is embodied on a computer readable medium and that includes computer readable program code.

None of these claims can possibly represent "nonfunctional descriptive material per se." According to MPEP § 2106.01, "nonfunctional descriptive material" includes but is not limited to music, literary works, and a compilation or mere arrangement of data. Claim 1 recites a method that performs various steps and outputs one or more values. Claim 12 recites a physical device that includes physical components. Claim 20 recites a computer program embodied on a computer readable medium. None of this is "nonfunctional descriptive material per se" in any way.

Second, the Office Action is using the improper standard here. The Office Action appears to focus on the value produced by the claimed invention ("one or more model parameters for use in processing one or more signals") and asserts that this result is nonfunctional descriptive material per se. This is improper. MPEP § 2106 clearly states that a

"claim as a whole must be considered" when determining compliance with § 101. The Patent Office cannot simply assert that the end result of a claimed invention is "nonfunctional descriptive material per se" and then declare the entire claimed invention to be non-statutory.

Third, the proper standard for determining compliance with § 101 requires that a claimed invention as a whole "must be useful and accomplish a practical application," meaning it must produce a "useful, concrete and tangible result." (*MPEP § 2106*). A claimed invention is "useful" when it satisfies the utility requirement of § 101. (*MPEP § 2106*). In this application, there is no rejection of the claims as lacking utility under § 101. As a result, Claims 1-29 produce a "useful" result.

A claimed invention produces a "concrete" result when it can produce a result that is substantially repeatable or that substantially produces the same result again. (*MPEP § 2106*). There is no assertion by the Patent Office that the claimed invention in this application produces a result that is unpredictable or unrepeatable. There is also no assertion by the Patent Office that the claimed invention in this application fails to substantially produce the same result again. As a result, Claims 1-29 produce a "concrete" result.

A claimed invention produces a "tangible" result when a claim sets forth a "practical application" of a § 101 judicial exception to produce a "real-world result." The "tangible" requirement does not require that a claim be tied to a particular machine or apparatus or that a claim operate to change articles or materials. (*MPEP § 2106*). Identifying and outputting one or more model parameters for use in processing one or more signals is clearly a "practical application" that produces a "real-world result" (unless the Patent Office takes the position that

actually identifying and outputting values for processing signals is a mere abstract idea).

The Office Action's position has no support in any statute, rule, case law, or MPEP section. The test for statutory subject matter is crystal clear – a claimed invention "as a whole" must be considered, and the claimed invention must produce a "useful, concrete, and tangible result." Here, the Office Action fails to examine the claims as a whole. The Office Action fails to explain why the result produced by the claimed invention is not useful under § 101. The Office Action fails to explain why the result produced by the claimed invention is not concrete. The Office Action fails to explain why the result produced by the claimed invention is not tangible. Instead, the Office Action goes so far as to argue that a device that filters a signal (as recited in Claim 29) is "nonfunctional descriptive material per se," which is impossible given the definition of "nonfunctional descriptive material" provided in the MPEP.

The burden is on the Patent Office to establish that the claimed invention is non-statutory. The Patent Office has failed to meet this burden using the appropriate standard.

Accordingly, the Applicant respectfully requests withdrawal of the § 101 rejection.

III.   REJECTION UNDER 35 U.S.C. § 102

The Office Action rejects Claims 12-27 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,615,164 to Gopisetty et al. ("*Gopisetty*"). This rejection is respectfully traversed.

A prior art reference anticipates a claimed invention under 35 U.S.C. § 102 only if every element of the claimed invention is identically shown in that single reference, arranged as they

are in the claims. (*MPEP § 2131; In re Bond, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990)*). Anticipation is only shown where each and every limitation of the claimed invention is found in a single prior art reference. (*MPEP § 2131; In re Donohue, 766 F.2d 531, 534, 226 U.S.P.Q. 619, 621 (Fed. Cir. 1985)*).

The Office Action makes absolutely no attempt to show that *Gopisetty* discloses the majority of the elements in Claims 12-27. Rather, the Office Action improperly asserts that various elements in Claims 12-27 can be ignored because of the phrases "operable to" and "program for."

Claim 12 has been amended to recite "at least one input receiving a first signal and a second signal" and "at least one processor generating a projection … identifying one or more parameters of a model … and outputting the one or more model parameters." Nothing in Claim 12 is optional. Claim 12 cannot be anticipated by any computing device as asserted in the Office Action.

Claim 20 has been amended to recite a computer program that includes "computer readable program code for receiving a projection," "computer readable program code for identifying one or more parameters of a model," and "computer readable program code for outputting the one or more model parameters." Again, nothing in Claim 20 is optional. Claim 20 requires a computer program to include "computer readable program code" for performing specific functions or steps. Claim 20 cannot be anticipated by any computer program as asserted in the Office Action.

For these reasons, *Gopisetty* fails to anticipate the Applicant's invention as recited in

Claims 12 and 20 (and their dependent claims).

Accordingly, the Applicant respectfully requests withdrawal of the § 102 rejection and full allowance of Claims 12-27.

IV.   REJECTION UNDER 35 U.S.C. § 103

The Office Action rejects 1-6, 9, 10, 12-16, 18, 20-23, 25, 26, 28, and 29 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2004/0057585 to Madievski et al. ("*Madievski*") in view of U.S. Patent Publication No. 2005/0015205 to Repucci et al. ("*Repucci*"). This rejection is respectfully traversed.

In *ex parte* examination of patent applications, the Patent Office bears the burden of establishing a *prima facie* case of obviousness. (*MPEP § 2142; In re Fritch, 972 F.2d 1260, 1262, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992)*). The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention is always upon the Patent Office. (*MPEP § 2142; In re Oetiker, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); In re Piasecki, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed. Cir. 1984)*). Only when a *prima facie* case of obviousness is established does the burden shift to the Applicant to produce evidence of nonobviousness. (*MPEP § 2142; In re Oetiker, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993)*). If the Patent Office does not produce a *prima facie* case of unpatentability, then without more the Applicant is entitled to grant of a patent. (*In re Oetiker, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); In re Grabiak, 769 F.2d 729, 733, 226*

U.S.P.Q. 870, 873 (Fed. Cir. 1985)).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, and not based on the Applicant's disclosure. (*MPEP § 2142*).

The Office Action acknowledges that *Madievski* fails to disclose a projection that includes "an upper triangular matrix having two diagonals," where "one or more model parameters" are identified using "one or more defined areas in the upper triangular matrix" as recited in Claims 1, 12, and 20. The Office Action asserts that *Repucci* discloses these elements of Claims 1, 12, and 20.

Claims 1, 12, and 20 have been amended to recite that an "upper triangular matrix" has two diagonals. This includes "a first of the diagonals starting at an upper left corner of the upper triangular matrix and traveling down and right in the upper triangular matrix" and "a second of the diagonals starting at a lower left corner of the upper triangular matrix and traveling up and right in the upper triangular matrix." Claims 1, 12, and 20 have also been amended to recite that one or more model parameters are identified using "one or more defined areas in the upper triangular matrix," where the one or more defined areas are "located in a single section of the

upper triangular matrix between the first and second diagonals."

Repucci simply discloses a "triangular canonical form," which represents an upper triangular matrix. (*Par. [0073]*). *Repucci* lacks any mention of identifying one or more model parameters using "one or more defined areas" in an upper triangular matrix, where the one or more defined areas are "located in a single section of the upper triangular matrix between the first and second diagonals."

The Office Action's justification for citing *Repucci* in rejecting the claims is that "any two diagonals are inherent in a matrix" and that, since the "diagonals are arbitrarily defined," the "one or more defined areas are also arbitrarily defined." The Applicant has amended the claims to clarify the first and second diagonals. The Patent Office can no longer rely on "any two diagonals [that] are inherent in a matrix" to reject the claims. Rather, the Patent Office must show that *Repucci* uses the same diagonals as recited in Claims 1, 12, and 20, which the Patent Office cannot do.

For these reasons, the proposed *Madievski-Repucci* combination fails to disclose, teach, or suggest the Applicant's invention as recited in Claims 1, 12, and 20 (and their dependent claims).

Accordingly, the Applicant respectfully requests withdrawal of the § 103 rejection and full allowance of Claims 1-6, 9, 10, 12-16, 18, 20-23, 25, 26, 28, and 29.

V.   NEW CLAIMS

The Applicant has added new Claim 30. The Applicant respectfully submits that no new

matter has been added. At a minimum, the Applicant respectfully submits that Claim 30 is

patentable for one or more reasons discussed above. The Applicant respectfully requests entry

and full allowance of Claim 30.

SUMMARY

The Applicant respectfully asserts that all pending claims in this application are in condition for allowance and respectfully requests full allowance of the claims.

If any issues arise, or if the Examiner has any suggestions for expediting allowance of this application, the Applicant respectfully invites the Examiner to contact the undersigned at the telephone number indicated below or at *wmunck@munckbutrus.com.*

The Applicant has included the appropriate fee to cover the cost of one (1) additional claim. The Commissioner is hereby authorized to charge any fees connected with this communication (including any extension of time fees) or credit any overpayment to Deposit Account No. 50-0208.

Respectfully submitted,

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